

CLAIMS

1. An impeller (42) of a centrifugal fan that sucks in gas from a rotating shaft (41a) direction and blows out the gas in a direction intersecting the rotating shaft, the impeller comprising:

5 a main plate (43) that rotates around the rotating shaft;
plural hollow blades (44) comprising first surface portions (51) that are annularly disposed around the rotating shaft and integrally molded with or fixed to the main plate and second surface portions (61) that are attached to the first surface portions and configure a hollow space (S) between themselves and the first surface portions; and

10 a side plate (45) that is disposed such that it sandwiches the plural hollow blades between itself and the main plate in the rotating shaft direction and integrally molded with or fixed to the plural first surface portions,

wherein the second surface portions are disposed such that they configure at least part of negative-pressure surfaces (44f) of the hollow blades.

15 2. An impeller (42) of a centrifugal fan that sucks in gas from a rotating shaft (41a) direction and blows out the gas in a direction intersecting the rotating shaft, the impeller comprising:

a main plate (43) that rotates around the rotating shaft;
plural hollow blades (44) comprising first surface portions (51) that are annularly
20 disposed around the rotating shaft and integrally molded with or fixed to the main plate and second surface portions (61) that are attached to the first surface portions and configure a hollow space (S) between themselves and the first surface portions; and

a side plate (45) that is disposed so as to sandwich the plural hollow blades between
itself and the main plate in the rotating shaft direction and integrally molded with or fixed to
25 the plural first surface portions,

wherein the second surface portions are disposed such that even if centrifugal force resulting from the rotation of the main plate acts thereon, the state where they are attached to the first surface portions is maintained.

3. The impeller (42) of the centrifugal fan of claim 1 or 2, wherein the second surface
30 portions (61) are attached to the first surface portions (51) by being fitted into the first surface portions.

4. The impeller (42) of the centrifugal fan of any of claims 1 to 3, wherein the plural first surface portions (51) and the side plate (45) are separately molded.

5. The impeller (42) of the centrifugal fan of claim 4, wherein the plural first surface portions (51) are fixed to the side plate (45) by laser welding.
6. The impeller (42) of the centrifugal fan of claim 5, wherein the material configuring the side plate (45) has a higher light transmittance than that of the material configuring the first surface portions (51).
7. The impeller (42) of the centrifugal fan of any of claims 4 to 6, further comprising a side plate-side guide mechanism for positioning the hollow blades (44) in the side plate (45).
8. The impeller (42) of the centrifugal fan of any of claims 1 to 7, wherein the plural first surface portions (51) and the main plate (43) are separately molded.
9. The impeller (42) of the centrifugal fan of claim 8, wherein the plural first surface portions (51) are fixed to the main plate (43) by laser welding.
10. The impeller (42) of the centrifugal fan of claim 9, wherein the material configuring the main plate (43) has a higher light transmittance than that of the material configuring the first surface portions (51).
11. The impeller (42) of the centrifugal fan of any of claims 8 to 10, further comprising a main plate-side guide mechanism for positioning the hollow blades (44) in the main plate (43).
12. The impeller (42) of the centrifugal fan of any of claims 1 to 11, wherein the hollow blades (44) include a blade shape retaining mechanism for preventing the second surface portions (61) from being deformed toward their outer peripheral side by centrifugal force.
13. The impeller (42) of the centrifugal fan of any of claims 1 to 12, wherein the second surface portions (61) include plural concavo-convexities (61a) formed in their surfaces.
14. A centrifugal fan (4) comprising the impeller (42) of any of claims 1 to 13 and a drive mechanism (41) that causes the main plate to rotate.